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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/801,805	03/09/2001	Takehisa Nakao	325772023100	5396

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EXAMINER

CHEN, WENPENG

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,805

Applicant(s)

NAKAO, TAKEHISA

Examiner

Wenpeng Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 11-13 is/are rejected.
- 7) ☒ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Examiner's responses to Applicant's remark

1. Applicant's arguments with respect to all the pending claims have been considered but are moot in view of the new ground(s) of rejection due to the amendments.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onodera (US patent 6,181,435 cited previously) in view of Kurihara et al. (US patent 5,901,278 cited previously in PTO-892.)

Onodera teaches an image processing apparatus adapted for processing a series of image data of a document comprising:

- an input device for acquiring image data; (input unit 17 of Fig. 2; Fig. 3; column 4, lines 35-48; column 4, lines 14-17)
- an image data processor for applying a processing to the image data acquired by the input device; (column 4, lines 52-67; column 5, lines 1-4; CPU 12 of Fig. 2; column 7, lines 3-14; Any part of CPU for processing image data other than the part for compression is considered to be the image data process. For example, the part for thinning the data.)

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-- a compressor for compressing the image data processed by the image data processor; (column 4, lines 52-67; column 5, lines 1-4; CPU 12 of Fig. 2; column 7, lines 3-14; The part for compression in the CPU is considered to be the compressor.)

-- a storage medium for storing the image data compressed by the compressor; (column 6, lines 44-54; the band memory)

-- a controller for controlling the image data processor, the storage medium and the compressor so that after the compressed image data is stored in the storage medium the processing applied by the image data processor is changed when it is determined that the storage medium cannot store further image data of the series; (column 4, lines 52-67; column 5, lines 1-4; CPU 12 of Fig. 2; column 7, lines 3-14; column 6, line 63 to column 7, line 2; The part of CPU for changing the compressing means is considered to be the controller. The change of the compressing means includes "a method which reduces the data amount of raster data while appropriately thinning the data, and again compresses the raster data by the same compression method, and upon expansion, interpolates the thinned data with peripheral pixels." The change is controlled by the CPU.)

-- wherein processing performed by the image data processor comprises density conversion processing; (column 3, lines 10-42; column 7, lines 3-14; The compression rate can be adjusted with degrading tone-level representation. The process of degrading tone level is density conversion processing.)

-- wherein the controller calculates compression rate required for storing an entire image data of the document in the storage medium when it is determined that the storage medium cannot store further image data of the series; (column 3, lines 10-43; column 5, lines 29-48;

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column 6, line 63 to column 7, line 2; steps S304, S310, S313 of Fig. 3; As shown in S313, the question in step S310 is related to store an entire data under consideration. Predicting process comprises calculating process.)

-- wherein the controller calculates the compression rate required for storing the entire image data in the storage medium based on a volume of image data of the document already stored in the storage medium and a volume of image data of the document not yet acquired by the input device; (column 3, lines 10-43; column 5, lines 29-48; column 6, line 63 to column 7, line 2; steps S304, S310, S313 of Fig. 3; As shown in S313, the question in step S310 is based on volume of image data already stored and volume of image data not yet acquired by the input device.)

-- wherein the image data processor conducts the changed processing in accordance with compression rate calculated by the controller. (column 6, line 63 to column 7, line 14)

However, Onodera does not teach the feature related to processing a plurality of pages and decision whether the medium can store another page or not.

Kurihara teaches an image processing apparatus adapted for processing image data corresponding to a plurality of pages of a document comprising:

-- a controller for controlling the image data processor, the storage medium and the compressor so that after compressed image data corresponding to a plurality of pages of the document is stored in the storage medium the processing applied by the image data processor and a compression rate applied by the compressor to the processed image data are changed so that image data corresponding to all pages of the document can be stored in the storage medium when it is determined that the storage medium cannot store further image data corresponding to a

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given page of the document. (Fig. 5; column 9, lines 38-65; especially lines 53-65. Passage from column 9, lines 53-65 discusses a situation that the memory is overflowed during a process to read all of the pages. Fig. 3 shows there is only one memory, memory 29. The overflowing action does not need to wait until all pages of a document are read. The processing is changed from reading state to stop-and reading-again state and the compression factor is changed to a higher value.)

It is desirable to broaden printing control to various situations, such as apply control to data on page basis as well as band basis. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Kurihara's teaching to use Onodera's image processing apparatus also in a page basis for processing image data corresponding to a plurality of pages of a document because the combination broadens application of the printing control system.

The above combination and motivation also teach the methods recited in Claims 11-12 corresponding to Claims 1-2.

4. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Onodera and Kurihara as applied to Claims 2 and 12, and further in view of Katayama et al. (US patent 4,975,786 cited previously.)

The combination of Onodera and Kurihara teaches the parental Claims 2 and 12 of the above-listed claims. Onodera further teaches many compression methods including an MH compression and an MMR compression, and JPEG compression can be used. (column 12, lines

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4-25) However, the combination does not teach the feature related to the image density variation recited in the above-listed claims.

Katayama teaches a system for processing image data, the system comprising a controller controls an image data processor such that a high density area or a low density area of the image data increases. (column 3, lines 27-33; column 9, lines 19-27; column 10, lines 3-5; column 11, lines 32-68) In the process, particle like noises of black dots are reduced in the white or background regions – a process of reducing image density variation in the white or background regions. As shown in column 6, lines 44-46, by changing the threshold T1, the background (other than the character portion) of an image can be erased. It would be obvious to a person skill in the art that changing of T1 can change image density variation and lead to long run length of white pixels for better compression efficiency.

It is desirable to have various methods for adjusting compression efficiency when a memory is short for storing compressed data. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to include Katayama's processing means for improving run length of white pixels as one alternative of Onodera's means in the apparatus taught by the combination of Onodera and Kurihara for improving compression efficiency because the overall combination improves flexibility.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Onodera and Kurihara as applied to Claim 1, and further in view of Chen et al. (US patent 6,061,473 cited previously.)

The combination of Onodera and Kurihara teaches the parental Claim 1 of above-listed claim. In column 7, lines 3-14 and column 12, lines 11-25, Onodera further teaches that when compression ratio needs to be increased with adjusting parameters such as the thinning process, *the thinned raster data are again compressed with the same compression method*. The passages indicate that the already-compressed data stored in the memory needs to be replaced with the compressed data of the thinned raster data. However, Onodera does not teach explicitly erasing the data already stored in the band memory related to Claim 7.

Chen teaches an adaptive compression method to prevent memory shortage in which a memory that stores compressed data of a low compression ratio is cleared (erased) to discard all the low-compression-ratio data before a improved- compression-ratio data are stored in the same memory. (column 5, line 49 to column 6, line 23)

It is desirable to discard all the unwanted compressed data in a memory to make available all of the memory to a newly compressed data and to prevent unnecessary interference to the new compressed data. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Chen's teaching to clear the memory in the apparatus taught by the combination of Onodera and Kurihara before data are processed with adjusting parameters such as thinning or tone-level change and compressed again because the overall combination increases the available memory capacity for the new compressed data.

Allowable Subject Matter

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6. Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter. The prior art fails to teach the apparatus of Claim 4, which specifically comprises the following feature in combination with other recited limitations:

-- wherein the controller *calculates a compression rate required for storing an entire image data of the document* in the storage medium *based on an average compression rate of image data of the pages stored in the storage medium when it is determined that the storage medium cannot store said further image data.*

Conclusion

7. THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). The Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

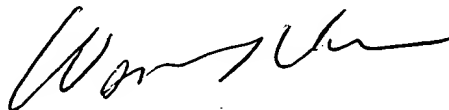
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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is 571-272-7431. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

November 25, 2005



**WENPENG CHEN
PRIMARY EXAMINER**